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Derek Mueller
Pacific University

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THE ROLE OF GUILT AND SHAME IN PREDICTING PROENVIRONMENTAL BEHAVIORS

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Paul G. Michael, Ph.D.

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Abstract

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Dedication

The researcher would like to thank his thesis advisor, Paul G. Michael, Ph.D. for his generous support, commitment and mentorship with this project. The researcher would also like to thank his friends and family for their support in completion of this project. Thank you.

The Role of Guilt and Shame in Predicting Proenvironmental Behaviors

Environmental degradation through unsustainable consumption practices has brought us to the tipping point—the critical point at which abrupt climate change begins (Lenton et al., 2008). In order to slow or prevent global climate change, action has to be taken to understand proenvironmental behaviors (PEBs), that is; behaviors that reflect environmental awareness in their motivation (e.g., purchasing energy efficient products; Peattie, 2010; Stern, 2000). Action both on an institutional and individual level is critical to curb global consumption practices. To date, researchers have focused on environmental concerns and attitudes towards the environment with the idea that individuals with greater concern for the environment are more likely to perform PEBs as a catalyst for change. However, research has demonstrated that this hypothesis is not completely accurate (Peattie, 2010). People with greater environmental concerns do not necessarily perform proenvironmental behaviors. The gap between attitudes and PEBs reflects a lack of understanding in decision-making and emotional influence of PEBs (Peattie, 2010; Stern, 2000). Currently, there is a need to better understand the discrepancy between behavioral intention and performing actual PEBs. Specific emotions have cognitive appraisal dimensions, "processes through which emotions exert effects upon judgment and choice until the emotion-eliciting problem is resolved" (Lerner 2000, p. 477). Understanding the cognitive appraisal dimensions, emotions (e.g., guilt and shame) and their influence on PEB would help to further our understanding of this phenomenon. The model utilized in this research study is a decision making model that will evaluate social and personal norms, altruism, moral obligations, guilt and shame and their appraisal dimensions to better predict proenvironmental purchasing intentions. The following discussion provides a review of the literature concerning environmental

psychology, identification of the gap in the literature, and hypotheses that were tested to improve our understanding of the motivation driving PEBs.

Proenvironmental Behaviors

"Helping" the environment has been defined in many ways in psychology since it became an area of research in the 1970's. In the literature, proenvironmental behavior (PEB) has a broad definition that considers the motivations and actions of an individual in relation to the environment (Stern, 2000; Peattie, 2010). Peattie (2010) defines proenvironmental behavior (PEB) as a purchase choice, product use and postuse, household management, consumer and collective activism behaviors, reflecting some degree of environmental-related motivation. The broad definition has allowed researchers to divide environmental research in two basic areas. The first area attempts to gain an understanding of the individual in the framework of how a person consumes—this includes the study of motivation and intentions. The second area attempts to understand outcomes of proenvironmental behaviors—effects on environment. Much of the former research can be subdivided. One subdivision is research that considers choice of the decision making process between brands, products or businesses. The other subdivision is research that focuses on consumption—specifically consuming less. One criticism of proenvironmental behavior research has posited that focusing on different types of consumption does not confront the problem of overconsumption. A paradox emerges between consumption and protection of the environment. This oxymoron creates complexity in an avenue of research that is already complicated. What people do to help protect the environment as well as their decision making process is largely contextual, based on personal moral, ethical, evaluations of responsibility, and emotions to at the time of the PEB (Stern, 2000; Peattie, 2010).

Theoretical Frameworks. Researchers have used many differing decision-making models to help predict proenvironmental behaviors. The major focus of research has been on attitudes, values, knowledge and beliefs. The various decision-making models have mixed results showing general support for the influence of values on some PEBs but may not carry across to other PEBs (Peattie, 2010; Stern, Dietz, Abel, Guagnano, & Kalof, 1999; Hartmann & Apaolaza-Ibanez, 2012).

Little research has focused on the decision-making with regard to emotional process in relation to PEB (Stern, 2000; Peattie, 2010). Several models have been used in previous research to help understand the decision-making process of PEBs but few studies have used emotions as a variable in predicting PEBs. Some of the methods most frequency used to model PEB are theory of reason action, theory of planned behavior, norm activation theory, and value-belief norm theory.

The theory of reasoned action and theory of planned behavior use attitudes about a behavior, subject norms and perceived behavioral control to attempt to predict behavioral intentions and outcomes. Both theories are widely used in environmental research (Ajzen, 1991; Davies, Foxall, & Pallister, 2002; De Groot & Steg, 2007). According the theory of planned behavior three factors influence behavior intention. The first factor is attitude towards the behavior. The second factor includes subjective norms or perceived social pressure to engage in the behavior. The third factor is perceived behavioral control, or the difficulty or ease with which one can perform a behavior. De Groot and Steg (2007) proposed using the theory of planned behavior to explain intention to use a park-and-ride facility in the Netherlands. The aim of the study was to examine the relationship between attitudes towards the park-and-ride superficially environmental concern and behavioral intention to use the park-and-ride. Environmental

concern did not predict use of the park-and-ride. Although this study attempted to extend the theory of planned behavior to incorporate environmental concern no direct relationship was discovered. Although the relationship between environmental concern and PEBs was not established De Groot and Steg (2007) found that egoistic values appeared to be most strongly related to use attitudes. This finding suggests that attitudes toward using the park-and-ride were effected by self-interest. A gap exists between attitudes and behaviors and a model that accounts for self-interest and personal needs could better predict use.

Garling, Fuji, Garling, and Jakobsson (2003) proposed using a hybrid of the theory of reasoned action and the norm-activation theory of altruistic behavior in order to predict proenvironmental behaviors. The theory of reasoned action is used to predict behavioral intentions by assessing attitudes as well as perceptions of social norms. The norm-activation theory of altruistic behavior assesses for subjective moral values. The authors created a hybrid model by assessing attitudes and perceptions of social norms as well as moral obligation towards the environment in order to predict proenvironmental behaviors. The aim of the study was to test their hybrid model and to test the influence of self-interest and social interests on proenvironmental behavior.

The authors concluded that intention to perform proenvironmental behaviors depends on sense of moral obligation and awareness of consequences for oneself and others. Those who value prosocial behavior also tended to value issues which confronted social aspects of environmental behaviors (e.g. reporting that pollution, which harms people all over the world, is an important concern). Those who valued their own interests more focused on outcomes that would affect them personally (e.g. environmental legislation which limits their personal freedom). The decision to engage in proenvironmental behavior also relies on self-interest and

social interest. Moral obligation, and consequences for oneself and others, help predict proenvironmental behaviors although other researchers have postulated differing theories for predicting behavior intention. Although this study attempted to create a hybrid model for understanding the influence of PEBs by including altruism and social interests still several key factors are missing. The current study will attempt to incorporate altruism as a variable in order to measures social interest it will also add measures of emotional aspects. Several of the emotional aspects that the current study will attempt to account for are personal control over behavior and ease of executing those behaviors. As learned from the Garling, Fuji, Garling, and Jakobsson (2003) social interest is dependent on the values a person has, so it is important to understand how product type may interact PEBs.

Pollai, Hoelzl, Hahn, and Hahn (2011) investigated the effects of anticipated emotions (feelings about an event in the future) on the intention to purchase hedonic and utilitarian products. Hedonic products are products that elicit feelings of pleasure and excitement. Utilitarian products are products that have use or function. The researchers aimed to examine the relationship between anticipated emotions and the decision making process. Results indicate that the greater the positive anticipated emotion the greater the purchase intention despite the type of product (hedonic or utilitarian). Although results indicate that emotions influence decision-making one limitation is that two product types were used and a nonsignificant interaction between product type and anticipated emotion was found. Indicating that product type cannot fully explained in the model by emotion in the model. Pollai, Hoelzl, Hahn, and Hahn (2011) recommend that future research use one product rather than multiple products that may be classified as hedonic or utilitarian. The Pollai, Hoelzl, Hahn, and Hahn (2011) study is important for the current study because it points out the salience of the emotional process in decision-

making. Pollai, Hoelzl, Hahn, and Hahn (2011) also point an important methodological facet, having a single product choice may allow for emotions to explain more of the variance in product type despite it being hedonic or utilitarian. Emotions play an important role in decision-making yet, emotions have been given little attention in environmental psychology decision-making processes.

Sterns (2000) views a balance between egotistic, altruistic, and biospheric will contribute to a sense of obligation and produce several types of behaviors; activist behaviors, nonactivist public-sphere behaviors, private-sphere behaviors, behaviors in organizations. Distinction between major behaviors falls into three categories; private sector household behaviors, environmental citizenship, and willingness to make a financial contribution to environmental causes. Finally, the value-belief-norm model proposed by Sterns (2000) insists that causal variables that predict private behaviors may be different that public sphere behaviors. Private sphere behaviors include purchasing, use and disposal of household products that have environmental impact. These include large and infrequent purchases like appliances. The value-belief-norm model explained 19% of the variance for private-sphere behavior (Stern, 1999). Within private-sphere behavior are attitudinal factors such as personal norms and values. Personal norms and values are dispositional factors that influence whether one may engage in proenvironmental behaviors. As already noted in many theories, (Stern, 2000; Ajzen, 1991; Garling, Fujii, Garling & Jakobsson, 2003) contextual factors including social expectations and interpersonal influences, specifically laws and regulations also influence decision-making. Personal capabilities including knowledge and skill necessary for taking a particular action specifically social status and financial resources are contextual factors that may affect decision-making. Finally, habit or routine, a causal variable, defined as a standard operating procedure is

an important factor determining if an individual will engage in a proenvironmental behavior. The factors explained above are important for understanding specific causal influences that lead to proenvironmental behaviors. Stern's (1999) study has provided a good rationale for future studies indicating that future study should focus on less on the general terms but instead about the causal links between values, beliefs and norms in the public and private sphere. The current study will attempt to incorporate values, beliefs and norms with the focus on a specific and targeted PEB that is a private sphere behavior. The next section will focus on the emotional influence and implication for the current study.

Emotional Influence. Adapting the considerations of predictive models of proenvironmental behavior with the inclusion of major gaps may add to the predictive power of these models. Other researches have proposed that emotions have important impact on the decision making process which could fill the gap between attitudes and behavioral intention (Waston & Spence, 2007; Stern, 2000; Peattie, 2010; Lerner & Keltner, 2000; Rivis, Sheeran & Armitage, 2009).

Research on specific emotions such as guilt and shame may help fill the gap and add to predictive power of the current models of proenvironmental behavior. It is already known that emotions play a role in economic decision-making (Loewenstein, 1996; Lerner, Small & Loewenstein, 2004; Watson & Spence, 2007; Rucker & Petty, 2004; Roseman, 1991). Hartmann & Apaolaza-Ibanez (2012) found consumers environmental concern influenced purchase intention which was partially mediated by brand attitude. The authors also found that utilitarian benefits, like reduction in fossil fuel emissions, influences consumers purchase intention. Lerner and Keltner (2000) have indicated that emotions have cognitive appraisal dimensions that influence behavior. Emotions have appraisal tendencies, which are a particular set of cognitive

dimensions that direct cognition to address specific problems or opportunities. Cognitive appraisal dimensions direct behavior through the qualities associated with each emotion—these dimensions exists both as dispositional (occurring over time) and as individual events. The qualities of emotion include certainty, pleasantness, attentional activity, control, anticipated effort, and responsibility. Smith and Ellsworth (1985) explain each of these appraisal themes exist in degree of intensity from low to high. Certainty is the degree to which events in the future seem reliable and predictable. Pleasantness is the degree to which one feels pleasure related to the emotion. Attentional activity is the degree which something warrants attention. Control is the degree to which events seem to involve individual efficacy or situational circumstances. Anticipated effort is the degree to which physical or mental effort will be needed to complete a task. Responsibility is the degree to which the individual or someone else seems to be responsible for the situation. Although emotions may seem similar if they are understood from quantitative measures of intensity it is apparent that from an appraisal-tendency frame work that the dimensions of the emotions can be quite different. For example, emotions like anger and fear can, based on valence, seem similar (both negative) although the appraisal dimensions are different. Fearful and angry individuals assess risk differently, where fear predicted higher risk assessments and anger predicted lower risk assessments (Lerner & Keltner, 2000). The current study is interested in the influence of appraisal dimension on purchase choice. The influence of emotion and the added direction that emotions play is an important facet of consumer behavior and may influence purchase behavior. The consequences of emotions also influence other types of decisions including economic ones.

Researchers have shown that differential emotions with comparable valences can lead to different consumption related behavior (Waston & Spence, 2007; Westbrook, & Oliver, 1991).

Lerner and Keltner (2004) using disgust and sadness (both of which have high level of certainty in their appraisal dimensions) found that sad individuals were willing to accept a lower selling price and higher purchasing price (in effect losing money) because of perceived lack of control in changing the situation. Compared to sad individuals disgusted individuals perceived more control of an events and created better deals. Several studies have looked at the role of the appraisal dimension certainty with respect to consumer decisions findings indicate that individuals experiencing emotions with greater uncertainty were less willing to choose high risk-reward options, greater uncertainty is also related to reliance on expertise (Raghaunthan & Pham, 1999; Lerner & Keltner, 2000; Tiedens & Linton, 2001; Richins, 1997). Certainty consistently plays a role in choice when differential emotions are used. The appraisal dimensions in these studies influenced the perspectives and outcome of the individual participants event thought the valence of the emotion is similar. Despite similarities in emotional valence this study is interested in how behavior can be directed by emotional appraisal despite emotional similarities of guilt and shame.

The current research focused on the influences that appraisal dimension have on environmentally friendly purchase decisions; specifically, the appraisal dimensions of certainty, anticipated effort, and control. Little research has focused on these appraisal dimensions specifically in predicting purchase decisions. The theoretical understanding of these constructs supports their use. That is, appraisals of anticipated effort may influence how/if individuals choose to purchase environmentally friendly products—if effort seems too great it may lower the likely hood that an individual will purchase an environmentally friendly product. Individuals that feel uncertain about their ability influence environmental change may be less likely to purchase environmentally friendly products. Similarly, individuals that feel they have little control in

influencing environmental change may be less likely to purchase environmentally friendly products. The appraisal dimensions are connected with emotion; the current study is interested in the role of guilt and shame on purchase intention.

Guilt and shame have related appraisal dimensions. Both are associated with high levels responsibility and control but differ slightly on certainty with individuals feeling more uncertain with shame than guilt (Smith & Ellsworth, 1985).

Currently a gap exists between behavioral intention and actual proenvironmental behaviors. The proposed decision making model will evaluate whether social and personal norms, altruistic attitudes, behavioral control, moral obligations and anticipated emotions are able to predict proenvironmental purchasing intentions. The following hypotheses will be tested in order to understand which variable best predict PEBs in the sample.

H1a. Environmental Attitudes as measured by the New Environmental Paradigm (NEP) will predict the environmental purchase choice.

H1b. Personal Beliefs, which include measures of Traditionalism, Altruism and Liberalism, will the predict environmental purchase choice in the full model.

H1c. Guilt and shame as measured by the Guilt and Shame Proneness Scale (GASP) will add to the predictive power of environmental attitudes in the model.

H2a. Altruistic attitudes as measured by the Altruism measure will be strongly correlated with guilt and shame emotions.

H2b. Altruistic attitudes as measured by the Altruism measure will be strongly correlated with the Guilt-repair subscale on the GASP.

Method

Participants

The investigator recruited a sample of 99 participants; however two participants were identified as outliers and excluded from the analyses. The final sample of 99 participants was made up of 60.6% women and 39.4% men with mean age of 33 (SD=14.74). The sample was 79.8%, Caucasian, 55% indicated they had some college education but not degree, 36.4% indicated their family income was less than $25,000, 43.4% indicated they were students with 28.3% indicating they worked full time.

Materials and Procedure

A proposal to conduct this research was submitted to Pacific University's Institutional Review Board (IRB). Upon IRB approval participants were recruited through social media sites and online forums. The participants responded to requests for participation in an environmental psychology study that was posted on various online venues including Reddit and Facebook. Potential participants followed a link to a website that contained the informed consent and assessment measures. Informed consent was obtained before participants were allowed complete the assessment measures. The informed consent included a description of the purpose of the study, investigator's contact information, and a description of any possible risks or benefits to participation. Participants were offered no compensation for their participation in this study. At the beginning of the survey the participants considered which appliance they would rather purchase. The purchase decision included two dishwashers one that had environmentally friendly options and one that had no environmentally friendly options (see Appendix A). The stimulus

was composed of two dishwashers with specifications similar to those on the market at the time of the study. The stimulus specifications included "Features" "Design" and "Efficiency." The only differences that existed between the two models were the "Efficiency" specifications including, "200 kwh/yr-ENERGRY STAR" "Exceeds ENERGY STAR requirements for Water Saving by 125%" and "EcoSense Reduces Energy Usage by up to 20%." As described below the participants then completed a battery of assessments used to assess environmental attitudes, environmental socially desirability, guilt and shame proneness, traditionalism, liberalism, and altruism, the survey ended by gathering demographic data. Demographic data was also collected and included age, gender, ethnicity, spousal arrangements, level of education, household income, and influence on large item purchases in the household (See Appendix B).

Measures

The Environmentally Desirable Response Scale (EDRS) developed by Ewert and Galloway (2009) was created to measure social desirability as it pertains to environmental attitudes; specifically self-deception and impression management. The EDRS is used to identify individuals that may mask their bias toward environmental issues especially if the bias is not socially desirable. The original total scale consists of 24 items and was later revised to include 18 of the original 24 items. Further, the EDRS contains 3 subscales, Image Management, Self-Deception – Assertion of Positives, Self-Deception – Denial of Negatives. The Image Management scale, which contains 5 items, includes items such as, "I am not interested in trying to influence people's thinking about the environment." The Self-Deception – Assertion of Positives scale contains 9 items, an example includes, "I am always honest with myself about how I really feel about the environment." Finally the Self-Deception – Denial of Negatives

subscale consist of 4 items, an example includes, “It bothers me if people dislike me because of my views about the environment.” The items on the Self-Deception – Denial of Negatives are all-reverse scored. Responses are made using a 7-point Likert scale (1= not true, 4= somewhat true, 7= Very true) that measure agreement with the aforementioned statements. A total score is derived by summation of response to each item including items that are reverse scored. Reliability estimates on the subscales of the EDRS have been found to range from .61 to .74. Specifically, the Self-Deception-assert positives had an alpha of .74, the Image Management scale had and alpha of .66, the Self-Deception-denial of negatives scale had an alpha of .61 (Ewert & Galloway, 2009). Criterion validity was determined by comparing scores of self-deception and impression management with Japanese, US and Australian participants. Japanese scored significantly lower on self-deception and higher of impression management than US and Australian participants.

Personal Beliefs. The following 3 measures were scales taken from the International Personality Item Pool (IPIP). The IPIP is a public domain source for measures of personality. The IPIP website does not include normative information about their measures. The reliability and validity of the specific measures used in this study are reported below. In general, the IPIP website reports reliability estimates for their scales as well as criterion validity in the form of Pearson correlations with other validated measure of personality. The IPIP website uses NEO Personality Inventory, The Big Five, and 16 Personality Factor Questionnaire to make inferences about concurrent validity (International Personality Item Pool; Goldberg et al., 2006)

Altruism was measured using a scale developed by Goldberg et al. (2006) that contains 10 items on a 5-point Likert scale (1= Very Inaccurate, 3= Neither Accurate Nor Inaccurate, 5= Very Accurate) that measures selflessness and concern for others. Examples of two items include, “I

make people feel welcome" and "I turn my back on others." A total score is derived by summation of response to each item taking care to attend to reverse scored items. Reliability estimates from Goldberg et al. (2006) indicate the internal consistency of the scale at alpha .77. Goldber et al. (2006) found Pearsons *r* correlations with similar constructs from the NEO Personality Inventory and altruism scale indicate a strong correlation of .67 (International Personality Item Pool).

Traditionalism was also measured using a scale from the IPIP that contains 10 items with responses measured on a 5-point Likert scale (1= Very Inaccurate, 3= Neither Accurate Nor Inaccurate, 5= Very Accurate). The items assess one's tendency to believe in traditional principals including political and personal values. Examples of items include, "I tend to vote for conservative political candidates" and "Believe that we should be tough on crime." A total score is derived by summation of response to each item taking care to attend to reverse scored items. Reliability estimates from Goldberg et al. (2006) indicate the internal consistency of the scale at alpha .87. Goldberg et al. (2006) found Pearsons *r* correlations with similar constructs from the NEO Personality Inventory and traditionalism indicate a strong correlation of .75 (International Personality Item Pool).

Finally, Liberalism was measured using a scale from the IPIP that contains 10 items with a 5-point Likert response scale (1= Very Inaccurate, 3= Neither Accurate nor Inaccurate, 5= Very Accurate). The items assess one's tendency to believe in progressive principals including political and personal values. Examples items include, "I tend to vote for liberal political candidates" and "Believe that criminals should receive help rather than punishment." A total score is derived by summation of response to each item taking care to attend to reverse scored items. Reliability estimates from Goldberg et al. (2006) indicate the internal consistency of the

scale at alpha .86. Goldberg et al. (2006) found Pearsons *r* correlations with similar constructs from the NEO Personality Inventory and altruism scale indicate a strong correlation of .70 (International Personality Item Pool).

Environmental Attitudes/Beliefs. Environmental attitudes were measured using the New Ecological Paradigm (NEP) developed by Dunlap, Van Leire, Mertig and Jones (2000). The NEP is one of the most popular measures for assessing environmental attitudes since it was created in the late 1970's (Dunlap & Van Liere, 1978; Dunlap, Van Leire, Mertig, & Jones, 2000). The NEP contains 15 items and responses are measured on a 5-pont Likert scale (1= Strongly Agree, 3= Unsure, 5= Strongly Disagree). Examples of items include, "Humans are severely abusing the environment" and "The earth has plenty of natural resources if we just learn how to develop them." A total score is derived by summation of response to each item taking care to attend to reverse scored items. Reliability analysis performed by Dunlap, Van Leire, Mertig and Jones (2000) to examine the internal consistency of the scale, which revealed an alpha of .83. Politically liberal, young, educated participants tended to endorse proenvironmental values Pearsons *r* correlations with politically liberal (r =.32), age (r = -.11) and educated (r =.10) (Dunlap, Van Leire, Mertig, & Jones, 2000). Scores on the NEP have also been found to be correlated with self-reported proenvironmental behaviors (r = .31), seriousness of ecological problems (r = .61), and a measure of support for environmental policies (r = .45) (Dunlap, Van Leire, Mertig, & Jones, 2000).

Emotional Appraisal. The Guilt and Shame proneness scale (GASP) was developed by Cohen, Wolf, Panter, and Insko and measures propensity to experience guilt and shame across various

personal transgressions. The scale contains 16 items and respondents are given a 7-point Likert scale (1= very unlikely, 4= about 50% likely, 7= Very likely). Examples items include, "A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?" and "You secretly commit a felony. What is the likelihood that you would feel remorse about breaking the law?" The GASP has four subscales that measure negative behavior evaluations (NBE) and repair action (RA) tendencies for guilt and negative self-evaluations (NSE) and withdrawal action tendencies following a public transgression for shame. Reliability estimates on the subscales of the GASP have been found to range from .61 to .71. Specifically, the Guilt NBE had an alpha of .71, the Guilt Repair scale had an alpha of .61, the Shame NSE had an alpha of .67 and Shame withdraw scale had an alpha of .66 (Cohen, Wolf, Panter, & Insko, 2011). The GASP subscale were positively correlated with empathic concern (.37, .26, .33, -.14), perspective taking (.29, .10, .29, -.12), conventional morality (.57, .34, .43, -.11) on the four subscales of the GASP, Guilt NBE, Shame NSE, Guilt Repair, and Shame withdraw, respectively.

Cognitive Dimensions of Appraisal. The Appraisal Dimensions Questionnaire (ADQ) used for this study was modified based on the work done by Smith and Ellsworth (1985) which evaluated appraisal dimension of the PEB task. As emotions guilt and shame are closely related but their appraisal dimensions differ in some key ways (certainty, attention, control, pleasantness and anticipated effort). The original ADQ was a 15-item scale where responses are provided based on an 11 point monopolar scale (1=not at all, 11= Extremely). However, for two items, pleasantness and attention, a 5-point bipolar scale (1= unpleasant, divert attention, 5= pleasant, devote attention) is provided. Six questions where adapted to evaluate control, effort and

certainty, all questions weighted on a 5-point bipolar scale (5= Strongly Agree, 1= Strongly Disagree) “I feel that the effort to start purchasing environmentally friendly products is worth it” “I am very certain that if purchase environmentally friendly products that it helps the environment” (Smith & Ellsworth 1985).

Purchase Decision. Participants were asked to make a purchase decision when presented with two dishwashers one that had environmentally friendly options and one that had no environmentally friendly options (as described above). Subjects were provided with the following instructions: “Imagine you are in the market for a new dishwasher because your current model is broken. You must choose between several brands. Take a moment to image this scenario and all the aspects and considerations of purchasing a new dishwasher as if you were going to buy one right now. Choose which product you will buy.” In addition to the purchase decision 3 additional questions were asked related how the aspects of the stimulus influenced choice. The questions intended to act as a manipulation check in order to determine if participants were attending to the stimulus as well as evaluate if environmental friendly aspects influenced purchase decision (see Appendix C).

Results

Preliminary Data Analysis

All data were analyzed using IBM SPSS 20.0 for Mac and were first screened to identify potential outliers when considering the key variables. Two outliers where found in the sample by analyzing z-scores—scores that were found to be greater than 3.29 were excluded from the data analysis. The EDRS was used to exclude any participants that may have been responding in a

socially desirable way. EDRS scores were analyzed similarly to outliers—z-scores exceeding 3.29 would be excluded. For this sample, only 2 z-scores exceeded 1.96 these participants were not eliminated.

Reliability

Internal consistency estimates for each measure are reported in Table 1. All of the scales had an acceptable level of reliability, that is, an alpha above .80, except for the EDRS and the Guilt-Repair scale. According to Nunnally and Bernstein (1994) a Cronbach's alpha above .80 indicates adequate reliability for basic research purposes.

Table 1
Internal Consistency Reliabilities (*N* = 99)

Measure	Cronbach's Alpha
NEP	.89
Liberalism	.83
Traditionalism	.89
Altruism	.86
GASP	.82
EDRS *	.57
Guilt-Repair	.69

* N = 45

Descriptive Statistics

80.8% of the sample chose the environmentally friendly dishwasher over the conventional dishwasher. The sample was composed of participants (36.4%) that indicated their

household income less than $25,000. 68.7% indicated they do most of the shopping in the household. 38.4% percent of sample indicated that they make most of the large purchase decisions in the household, 31.3 % indicated they have a lot of influence. In follow up questions the total sample indicated they chose the dishwasher based on “The Efficiency” 93.9%, “The Features” 5.1%, “The Capacity” 1.0%, respectively.

Values for descriptive statistics related to all variables used reported in Table 2 including means and standard deviations.

Table 2

Descriptive statistics for personal beliefs (*N* = 97)

Measure	Mean	Standard Deviation
Altruism	41.23	5.27
Traditionalism	25.21	9.43
Liberalism	32.86	7.6
GASP	79.1	11.4
Certainty	6.84	2.02
Effort	7.94	2.12
Control	7.41	2.14
NEP	57.03	10.95
EDRS *	72.8	6.4

* N = 45

Values for the descriptive statistics related to EDRS reported in Table 2 indicate a different sample size. It is important to note that not all participants responded to all the items on the EDRS. A total of 45 participants from the sample responded to all the items on the EDRS.

Logistic Regression Analysis

First, it was predicted that environmental Attitudes as measured by the New Environmental Paradigm (NEP) would predict the environmental purchase choice. In a standard logistic regression total scores on the NEP scale were evaluated. A test with one predictor (i.e., NEP) in the model against a null model was not statistically significant, χ^2 (1, N = 97) = .73, p = .39, indicating that the predictor, reliably did not distinguished between those that chose the environmental friendly dishwasher and those that did not. The finding indicates that for this sample scores on the NEP, which measure environmental attitudes, could not predict proenvironmental behavior. Table 3 shows regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for odds ratios for the constant and the predictor.

Table 3

Logistic Regression of Environmental Attitudes (N =97)

				95% Confidence Interval for Odds Ratio	
Predictor	*B*	Wald's χ^2	Odds Ratio	Lower	Upper
Constant	.324	.064	--	--	--
NEP	.019	.73	1.02	.98	1.07

A second standard logistic regression was performed to determine if psychological, attitudinal, and emotional variables could be used to identify participants that chose an environmentally friendly product over a conventional product. A total of eight predictors were included in the model; Altruism, Liberalism, Traditionalism, GASP, and Emotional Appraisal Dimensions. A test of the full model against a null model was statistically significant, χ^2 (8, N = 97) = 16.47, p = .036, indicating that the combination of predictors reliably distinguished between those that chose the environmental friendly dishwasher and those that did not. The variance accounted for in purchase choice based on the Cox and Snell R^2 (R_{CS}^2) and the Nagelkerke R^2 (R_N^2) was .16 and .25, respectively. Regarding prediction rates, 97.4 of the correctly environmentally friendly purchase choice were predicted and 15.8% of the conventional purchase choice correctly predicted, for an overall success rate of 81.4%. Table 4 shows regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for odds ratios for each of the eight predictors.

Table 4

Logistic Regression for the full model (N =97)

				95% Confidence Interval for Odds Ratio	
Predictor	*B*	Wald's χ^2	Odds Ratio	Lower	Upper
Constant	3.27	.77	--	--	--
NEP	-.03	.572	.97	.90	1.05
Liberalism	-.14	3.38	.87	.75	1.01

Traditionalism *	-.18	8.07	.83	.74	0.95
Altruism *	.16	5.58	1.17	1.03	1.33
GASP	.05	3.46	1.05	1.0	1.12
Certainty	-.05	.06	.96	.661	1.38
Control	-.22	1.461	.80	.56	1.15
Effort	.109	.289	1.12	.75	1.66

* $p < .05$

Finally, hierarchical logistic regression was performed to determine if psychological and attitudinal variables could be used to identify participants that chose an environmentally friendly product over a conventional product. The third hypothesis sought to test if guilt and shame will add to the predictive power of environmental attitudes. A test with the four predictors (Altruism, Liberalism, Traditionalism, NEP) in the first step of with GASP in the second step of the model was tested against a null model was statistically significant, $\chi 2$ (5, N = 97) = 14.66, p = .012, indicating that the predictor, reliably did distinguished between those that chose the environmental friendly dishwasher and those that did not.

The variance accounted for in purchase choice based on the Cox and Snell R^2 (R_{CS}^2) and the Nagelkerke R^2 (R_N^2) was .14 and .22, respectively. Prediction success of Step 1 was as follows: 96.2 of the correctly environmentally friendly purchase choice predicted and 5.3% of the of the conventional purchase choice correctly predicted, for an overall success rate of 78.4%. Prediction success for Step 2 was as follows: 97.4 of the correctly environmentally friendly purchase choice predicted and 15.8% of the of the conventional purchase choice correctly predicted, for an overall success rate of 81.4%. The finding indicates that for this sample scores

on the GASP, which measures guilt and shame proneness, did add some predictive power to the model. Table 5 shows regression coefficients, Wald statistics, odds ratios, and 95% confidence intervals for odds ratios for each of the four predictors.

Table 5

Two Step Logistic Regression for the full model (N = 97)

				95% Confidence Interval for Odds Ratio	
Predictor	*B*	Wald's χ^2	Odds Ratio	Lower	Upper
Constant	1.21	.13	--	--	--
NEP	-.02	.21	.99	.93	1.05
Liberalism	-.12	2.51	.89	.77	1.03
Traditionalism *	-.16	7.28	.85	.76	.96
Altruism *	.13	4.9	1.13	1.01	1.28
GASP	.05	3.2	1.05	1.0	1.12

* $p < .05$

Correlation Analysis

It was expected that altruistic attitudes as measured by the Altruism measure would be strongly correlated with guilt and shame emotions (i.e., H2a). Pearson's product-moment correlations were computed between the following variables two variables: GASP and Altruism. There was a significant positive medium relationship found between the altruism and Guilt and Shame emotions, $r(99) = .48$, $p = .01$. The 95% confidence interval for the population correlation coefficient would be between a value of .31 and .62.

Further it was expected that altruistic attitudes as measured by the Altruism measure would be strongly correlated with the Guilt-repair subscale on the GASP (H2b). There was a significant positive large relationship found between the altruism and Guilt-Repair emotions indicating, $r(99) = .51$, $p = .01$ indicating that feelings of altruism increase as Guilt-Repair feelings increase. The 95% confidence interval for the population correlation coefficient would be between a value of .35 and .64.

Discussion

The purpose of this current study was to increase the predictability of environmentally friendly purchase intention by using guilt and shame proneness as predictors. Previous research has focused on the other predictors including personal beliefs, and environmental attitudes. The current research study chose personal beliefs, environmental attitudes as well and guilt and shame proneness in the hopes of significantly increasing the ability to predict purchase intention. Although, guilt and shame did not predict purchase intention two personal belief variables did in fact predict purchase intention (traditionalism and altruism).

Logistic regression indicated that altruism and traditionalism were the best predictors of purchase intention. An overall success rate of the logistic regression was 81.4%. Overall most hypotheses were not supported—the addition of measures of guilt and shame did better predict purchase intention to some degree. The increase in overall predictive power when guilt and shames measure were added to the model increased the models effectiveness by 3%. The lack of significant finding insofar as environmental attitudes is not consistent with previous research although political and altruistic values are consistent with previous research findings (Stern,

1999 & Peattie, 2010). The influence of guilt and shame on proenvironmental purchase intention remains to be seen and should be followed up in further studies.

Significant correlations between variables indicate that guilt and shame proneness are associated with altruism in this sample. This is an important finding because it indicates that guilt and shame may still provide a fruitful area of research for environmental psychology. The finding that the Guilt-repair subscale is strongly correlated with altruism is important because this scale is intended to measure the intentions to repair or relieve guilty feelings by taking action. The correlation could represent a link between feelings of altruism and initiation to repair feelings of guilt by reducing cognitive dissonance—purchasing green products could be a potential factor in this process. The correlations between GASP and the Guilt-repair subscale are important areas of future research but finding are limited with this study.

Several limitations exist with the current research. The first limitation was the restricted samples size. The limited sample size of this research curtails the generalizability as well the statistical inferences that can be made. The sample size of 99 was much less than the size of 154 participants that was needed in order to reach medium effect size. The sample was largely made up of students (43.4%) that indicated their household income less than $25,000 (approx. 36.4%) These sample parameters do not represent individuals of the general population and likely do not represent individuals that are likely purchase new appliances. Many of the limitations can be overcome with better sampling techniques and future research should focus on these limitations.

Future research is needed regarding the emotional aspects related to purchase intention. Research focusing on potential factors relating to purchase intention may help direct marketing campaigns, and political groups to better understand proenvironmental behaviors.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavioral and human decision processes, 50,* 179-211. doi: http://dx.doi.org/10.1016/0749-5978(91)90020-T

Cohen, T. R., Wolf, S. T., Panter, A. T., & Insko, C. A. (2011). Introducing the GASP scale: A new measure of guilt and shame proneness. *Journal of Personality and Social Psychology, 100*(5), 947-966. http://dx.doi.org/10.1037/a0022641

Davies, J., Foxall, G. R., & Pallister, J. (2002). Beyond the intention–behavior mythology: An integrated model of recycling. *Marketing Theory, 2*, 29–113. http://dx.doi.org/10.1177/1470593102002001645

De Groot, J., & Steg, L. (2007). General beliefs and theory of planned behavior: The role of environmental concerns in the TPB. *Journal of Applied Social Psychology, 37*(8), 1817-1836. doi:10.1111/j.1559-1816.2007.00239.x

Dunlap, R. E., & Van Liere, K. D. (1978). The new environmental paradigm. *Journal of Environmental Education*, 9, 10–19.

Dunlap, R. E., Van Leire, K. D., Mertig, A. G., & Jones, R. E. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP Scale. *Journal of Social Issues*, *56*(3), 425-442. http://dx.doi.org/10.1111/0022-4537.00176

Ewert, A., & Galloway, G. (2009). Socially desirable responding in an environmental context: Development of a domain specific scale. *Environmental Education Research, 15*(1), 55-70. http://dx.doi.org/10.1080/13504620802613504

Garling, T., Fujii, S., Garling, A., & Jakobsson C. (2003). Moderating effects of social value orientation on determinants of proenvironmental behavior intention. *Journal of Environmental Psychology, 23*(1), 1-9. doi:10.1016/S0272-4944(02)00081-6

Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. C. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality, 40*, 84-96. http://dx.doi.org/10.1016/j.jrp.2005.08.007

Hartmann, P., & Apaolaza-Ibanez, V. (2012). Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research, 65*(9), 1254-1263. http://dx.doi.org/10.1016/j.jbusres.2011.11.001

International Personality Item Pool: A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences (http://ipip.ori.org/). Internet Web Site.

Lenton, T. M., Held, H., Kriegler, E., Hall, J. W., Lucht, W., Rahmstorf, S., & Schellnhuber, H. J. (2008). Tipping elements in the Earth's climate system. *PNAS, 105*(6), 1786-1793. http://dx.doi.org/10.1073/pnas.0705414105

Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a theory of emotion specific influences on judgment and choice. *Cognition and Emotion, 14(4),* 473-493. doi: 10.1111/j.0956-7976.2004.00679.x

Lerner, J. S., & Keltner, D. (2004). Heart strings and purse strings: Carryover effects of emotions and on economic decisions. *Psychological Science, 15*(5), 337-341. http://dx.doi.org/10.1111/j.0956-7976.2004.00679.x

Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes, 65,* 272–292. http://dx.doi.org/10.1006/obhd.1996.0028

Nunnally, J. C., & Bernstein, I.H. (1994). *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.

Pollai, M., Hoelzl, E., Hahn, L., & Hahn, A. (2011). The influence of anticipated emotions on consumer decisions: Examining the role of product type and belief in adaption. *Journal of Psychology*, *219*(4), 238-245. doi:10.1027/2151-2604/a00078

Richins, M. L. (1997). Measuring emotions in the consumption experience. *Journal of Consumer Research*, *24*(2), 127–146. doi:10.1086/209499

Roseman, I. J. (1991). Appraisal determinants of discrete emotions. *Cognition & Emotion*, *5*(3), 161–200. doi:10.1080/02699939108411034

Rivis, A., Sheeran, P., & Armitage, C. J. (2009). Expanding the affective and normative components of the theory of planned behavior: A meta-analysis of anticipated affect and moral norms. *Journal of Applied Social Psychology, 39*(12), 2985-3019. http://dx.doi.org/10.1111/j.1559-1816.2009.00558.x

Rucker, D. D., & Petty, R. E. (2004). Emotion specificity and consumer behavior: Anger, sadness, and preference for activity. *Motivation and Emotion*, *28*(1), 3–21. doi:10.1023/B:MOEM.0000027275.95071.82

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48,* 813-838. http://dx.doi.org/10.1037//0022-3514.48.4.813

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review, 6*(2), *81-97.*

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56,* 407-424. http://dx.doi.org/10.1111/0022-4537.00175

Watson, L., & Spence, M. T. (2007). Causes and consequences of emotions on consumer behaviour: A review and integrative cognitive appraisal theory. *European Journal of Marketing*, *41*(5/6), 487–511. doi:10.1108/03090560710737570

Westbrook, R. A., & Oliver, R. L. (1991). The dimensionality of consumption emotion patterns and consumer satisfaction. *Journal of Consumer Research*, *18*(1), 84. doi:10.1086/209243

Appendix A

Purchase Decision

Dishwasher One:

Features:

- 39 dBA—Quiet Dishwasher
- Water Softener—Ensures perfect Cleaning Results
- Stainless Steel Tub Design
- Delicate Wash Cycle for Fine China
- Variable Delay Timer

Efficiency:

- 200 kwh/yr – ENERGY STAR
- Exceeds ENERGY STAR Requirements for Water Saving by 125%
- EcoSense Reduces Energy Usage by up to 20%
- Half Load Option for Small Loads

Capacity:

- 15 Place Setting Capacity
- Flexible Silverware Basket
- Adjustable Upper Rack
- 3rd Rack for Additional Loading Capacity
- No Scratch Coating

Dishwasher Two:

Features:

- 39 dBA—Quiet Dishwasher
- Water Softener—Ensures perfect Cleaning Results
- Stainless Steel Tub Design
- Delicate Wash Cycle for Fine China
- Variable Delay Timer

Efficiency:

- 330 kwh/yr
- Designed to Save up to 20% more energy
- Designed to Save up to 20% more water
- Half Load Option for Small Loads

Capacity:

- 15 Place Setting Capacity
- Flexible Silverware Basket
- Adjustable Upper Rack
- 3rd Rack for Additional Loading Capacity
- No Scratch Coating

Appendix B

Demographic Questions

Please respond to each of the following:

Age: _____

Gender: _____ Male _____ Female _____Other (Please indicate below)
_____

Race (please select):

___ African American
___ Hispanic
___ Caucasian / White
___ Native American / Alaskan Native
___ Asian
___ Other / Multiracial
___ Decline to respond

Marital Status:

___ Married
___ Single
___ Divorced / Separated
___ Widow / Widower
___ Cohabitating

What is your level of education?
____ Some high school
____ Completed high school
____ Some college or technical school
____ 2 year degree
____ 4 year degree
____ Post-Graduate Degree

What is your yearly household income?
____ Less than 25,000
____ 25,000 to 50,000
____ 50,000 to 75,000
____ 75,000 to 100,000
____ 100,000 to 125,000
____ 125,000 to 150,000
____ More than 150,000

Do you have children?

____ Yes
____ No

Do you have children living in the household?

____ Yes
____ No

What is your employment status?

____ Full Time
____ Part Time
____ Student
____ Retired
____ Unemployed

Do you do the most of the shopping in the household?

____ Yes
____ No

Concerning large purchases, how much of an influence on the decision-making do you have in the household?

____ I do not make decisions
____ I have little influence
____ I have medium influence
____ I have a lot of influence
____ I make most of the decisions

Appendix C

Stimulus Questions

What was the major contributing factor in choosing one dishwasher over another?

____The Features
____The Efficiency
____The Capacity

What were the specific aspects of each dishwasher that you liked?
(List of all the aspects. Participants identified more than one.)

What were the major differences that you considered in your purchase?
(List of all the aspects. Participants identified more than one.)